III. ALTERNATIVES CONSIDERED

SITING ALTERNATIVES

Three project siting alternatives, the Buckhorn, Shute Creek and Northern Alternatives were analyzed for the Riley Ridge Project. The siting alternatives differ from the Proposed Action primarily in the location of certain plant sites and associated corridors. These alternatives change some aspect of the Proposed Action while keeping other aspects unchanged.

The treatment plants included in the Proposed Action and each Alternative are shown below by company, location, and processing capacity.

Applicant	Site	Capacity (billion cfd)
Proposed Action:		
Quasar	East Dry Basin	1.2
Exxon	West Dry Basin	.6
	Big Mesa	.6
Northwest	Craven Creek	.4
		2.8
Buckhorn Alternative:		
Quasar	Buckhorn	1.2
Exxon	West Dry Basin	.6
	East Dry Basin	.6
Northwest	Craven Creek	.4
		2.8
Shute Creek Alternative:		
Quasar	Buckhorn	1.2
Exxon	Shute Creek	1.2
Northwest	Craven Creek	.4
		2.8
Northern Alternative:		
Quasar	Buckhorn	1.2
Exxon	West Dry Basin	.6
	Big Mesa	.6
Northwest	East Dry Basin	.4
		2.8

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Agency (BLM, FS) Decision, or as stated in the FEIS the Agency Preferred Alternative, is synonomous with "Environmentally Preferred Alternative". The plant siting alternative of East Dry Basin, Shute Creek and Craven Creek would have fewer overall adverse impacts to resources than the other alternatves considered. See Section IV, Decision Rationale, for further discussion.

COMPONENT ALTERNATIVES

The component alternatives deal with sulfur transport, power supply, and employee housing.

Sulfur Transport

Two methods of sulfur transport were considered. One was to transport sulfur as a molten liquid in a 54-mile long, electrically heated, six-inch diameter pipeline form the northern treatment plants to a loadout facility located on a railroad spur near Opal, Wyoming. An alternative to a molten sulfur pipeline was a railroad spur. A railroad spur constructed to the northern sites would require approximately 91.5 miles of railroad. The southern sites (Craven Creek and Shute Creek) would be serviced by a railroad spur approximately 17 miles in total length.

Power Supply

Three power supply optional routes were analyzed. They are referred to as the Applicants proposed route, the Utah Power and Light route (UP&L) and the BLM route. BLM's routing alternative utilized parts of the applicants and UP&L's systems and was selected on the basis of BLM policy which is to encourage use of existing corridors wherever possible. The BLM route would utilize the exisiting 69-KV corridor.

Employee Housing

Construction camps were considered as options to housing construction employees in local communities. Camp sites were identified for the Proposed Action and the siting alternatives.

NO ACTION ALTERNATIVE

The purpose of this alternative is to analyze impacts which would occur if the Proposed Action or any of its alternatives were not implemented.

The Riley Ridge Project is composed of two categories of authorizing actions, one being the consideration of well field activities as a cumulative total to help facilitate the approval or disapproval of APD actions for approved federal gas leases, and the other the consideration of granting right-of-way permits for proposed sour gas treatment plants and their ancillary facilities. The low-Btu (sour) gas that is drilled for must be processed to be marketable to the consumer, thus the two authorizing actions are interdependent. In addition, wells would probably not be drilled on a large scale if processing facilities were not readily available.

No Action would constitute BLM and FS denial of each of the right-of-way applications submitted by the companies. This would mean that none of the gas treatment plants and ancillary facilities would be built and no action would be allowed in the well field as applied for in the project right-of-way applications. Some wells could still be drilled by operators later submitting individual APDs and the agencies preparing individual environmental assessment for each APD.

Thus, No Action would create three possible alternatives: denial of entire project, denial of treatment plants, and denial of one or more of the proposed treatment plants. The following discusses these in more detail.

Denial of Entire Project

The blanket denial of the entire project, treatment plants, ancillary facilities, and well field activities would prevent project proponents from constructing gas treatment facilities and from developing their lease rights (as stated in the Minerals Leasing Act of 1920, as amended).

Denial of Treatment Plants

Denial of the treatment plants, as applied for, may still allow for some low-Btu gas to be drilled for on an individual APD environmental assessment basis as currently occurs, including application of standard agency stipulations and specific mitigation developed in the environmental assessment.

Upon denial of treatment plant right-of-way applications, the companies might have the following options, among possibly others.

1. Find other possible plant site locations in the regional vicinity which might be more acceptable;

2. Transport sour gas out of the project region for treatment;

3. Transport sour gas to the Carter Creek or Whitney Canyon plants.

These possibilities were investigated and the following conclusions were drawn. The first option is real and would have to be analyzed in the event of new right-of-way applications. The second option appears to be impractical for several reasons, including high costs of long distance transport of gas, no known plants which have capacity to treat this kind of gas, hazards and lack of technology of long distance sour gas transport. The third option is not possible because the Carter Creek and Whitney Canyon gas treatment facilities do not have the necessary equipment and treatment process to remove the amount of CO_2 found in the Riley Ridge sour gas. In addition, they currently lack sufficient capacity.

Consequently, the above options were dropped from further consideration in the EIS.

Denial of One or More of the Proposed Treatment Plants

Another possible scenario under the "denial of treatment plants" would be the denial of one or more of the proposed plants or the alternative plant sites. This is a real possibility which could occur if there were adverse environmental or social impacts which could be avoided by such a denial.

The Proposed Action constitutes a "worst-case" or maximized development and implementation impacts analysis of various companies' proposals. Denial of specific plant proposals would result in fewer total impacts. The EIS addresses impacts of the various proposed projects which make up the Proposed Action.

Because the various portions of the Proposed Action are analyzed separately, sufficient analysis is provided in the EIS to allow selection of parts or denial of parts of the Proposed Action, thus no further analysis of this scenario is necessary.

ALTERNATIVES CONSIDERED BUT ELIMINATED

Treatment Plant Siting Scenarios

As part of their applications to the BLM, Quasar, Exxon, and Northwest/Mobil each presented a proposed treatment plant site and two alternative sites.

Various combinations of these sites would yield over 30 possible development scenarios, each processing 2.8 billion cfd of sour gas. Since it was not practical to analyze each of these scenarios in detail, certain alternatives were identified by the agencies and applicants which would provide a comprehensive analysis of potential impacts.

The results of initial air quality modeling conducted by Environmental Research and Technology, Inc. (ERT) indicated that Quasar's production capacity of 1.2 billion cfd at the East and West Dry Basin sites would violate air quality standards (PSD for SO_2). Since the intent of alternatives is to reduce various impacts identified for the Proposed Action, an alternative which violated air quality standards was not deemed appropriate. Thus, in addition to the Proposed Action (Quasar at East Dry Basin) only alternatives which located Quasar at the Buckhorn site were considered. The Buckhorn Alternative locates Quasar and Exxon at their first alternative sites.

Potential significant impacts to big game winter range were predicted for development in the Dry Basin area. Thus, an alternative which located all plant sites outside of the Dry Basin area was desired. The Shute Creek Alternative not only satisfies this objective, but also allows analysis of maximum development in the southern part of the project area.

Finally, an alternative which located all development in the northern portions of the project area (near Big Piney) was deemed necessary to give a wide range of alternatives for analysis. The Northern alternative was identified so that this combination of potential impacts could be assessed.

Other combinations of plant sites were reviewed and eliminated from detailed study because it was felt that they would duplicate situations which would be analyzed as part of the Proposed Action or three primary alternatives.

Multiwell Directional Drilling

As an alternative to development of the well field using vertical wells drilled from single sites, Exxon has proposed to evaluate development of the field using multi-well sites, locating up to four wellheads at a well site and drilling directional holes to reach the producing zone at the appropriate depth and spacing location. In order to fully evaluate the feasibility of directional drilling, Exxon plans to drill several test wells in the near future. The directional drilling program would then be evaluated, and a decision made regarding its use.

Geological constraints have a substantial impact on whether wells can be directionally drilled. The technical feasibility of directional drilling in the Riley Ridge area has not been demonstrated. While it may be practical at certain locations in the well field, too little information is available to apply directional drilling on a project-wide basis. Based on the feasibility of directional drilling and conflicts identified in the senstivity analysis, this alternative will be imposed as mitigation by the Authorized Officer, where necessary.

Project Component or Process Alternatives

In developing the Proposed Action, the applicants reviewed many alternatives for project components and processes. Those which have not been presented as a part of the Proposed Action or an alternative were dropped from detailed considerations. These alternatives and other reasons for eliminating them are summarized below.

1. Treatment Plant Sites

   A site adjacent to the Opal Gasoline Plant was rejected by Northwest prior to filing its application because of topography and the fact that the plants would not be compatible.

2. Sour Gas Treatment

   a. Gas separation alternatives. Exxon evaluated five chemical solvents, two physical solvents, one hybrid solvent, and two physical processes. All were rejected by Exxon prior to filing its application for process reasons.

   b. Tail gas cleanup alternatives. An Amoco CBA sulfur recovery unit was evaluated and rejected by Exxon prior to filing its application because it can only achieve a 98.6 percent recovery of sulfur in the tail gas.

3. Water Supply

   a. Big Sandy Salinity Project (all applicants). Water would not be available in time to supply the developing gas treatment plants. Plant operation would begin in late 1985 to early 1986, while Big Sandy water would not be available until about 1989.

   b. Groundwater for Craven Creek plant (Northwest). Sufficient yield for the plant would be uncertain.

   c. Hams Fork water for Craven Creek plant (Northwest). Sufficient water rights not available.

4. Sulfur Transport

   a. Sulfur pipeline from Craven Creek plant. A pipeline was rejected by Northwest prior to filing its application due to the proximity of the site to an existing railroad.

   b. Long-term truck transport over haul road. Rejected by Exxon prior to filing its application due to inefficiencies.

   c. Sulfur stockpile on plant site. Rejected by Exxon prior to filing its application due to inefficiencies.